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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/665,502 | 09/22/2003 | Ryuji Zaiki | 239198US2 | 6840 |
| 22850 | 7590 | 02/07/2006 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | SUCHECKI, KRYSZYNA | |
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| | | | 2882 | |

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/665,502 | Applicant(s) ZAIKI, RYUJI | |
| | Examiner Krystyna Suchecki | Art Unit 2882 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-11 and 14-23 is/are rejected.
- 7) ☒ Claim(s) 5, 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 1, 9, 11-13, 16, 17, 21 and 23 are objected to because of the following informalities: Claims 1 and 16 are objected to since "to support to" should be "to support" in line 4. There is no antecedence to connect the wireless signal to the supporting unit in lines 11-12 so that the supporting unit could be controlled by the wireless signal. Claim 9 does not have proper antecedence for "each the guide rail". The scope of the claim is also not clear. For examination purposes, the embodiment of figure 7, where a communication unit can be provided on guide rails, will be understood as claimed. Claim 11 lacks proper antecedence for the second drive. The combination of claims 11 and 12 also lacks antecedence for how the signal transmitted to the bed allows for the control of the supporting unit, which is not claimed as communicating with the bed. Claim 13 does not have proper antecedence for "the second signal". Claim 17 is objected to since there is no proper antecedence to link the state detection unit to the operation unit for detection purposes. Claim 21 should depend from claim 16. In Claim 21, lines 9-14 are grammatically incorrect. Claim 23 should reference "detecting a movement direction". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 16-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The disclosure as originally filed shows the detection of a state of attachment of an operation unit to a bed. The specification does not support the detection of a state of attachment of a drive unit to a bed. Claim 16, at lines 12-13, is directed to detecting a state of attachment of a drive unit to a bed. The invention as is now claimed in claims 16-21 is not supported by the disclosure as originally filed. Claims 17-21 are rejected by virtue of their dependency. This is a "new matter" rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 8-11, 14, 15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fenner (US 5,561,699) in view of Galando (US 6,131,690).

Regarding Claims 1, 11, 14, 15 and 22, Fenner teaches an X-ray diagnosis apparatus comprising an X-ray tube and X-ray detector (Column 2, lines 25-34), a bed configured to have an object placed thereon (Column 2, lines 25-54); an operation unit configured to define movement of at least the bed (Column 2, lines 40-61); other

operation units for controlling the X-ray tube and X-ray detector (Column 2, lines 25-34); a wireless communication unit configured to transmit a wireless signal related to the movement from the operation unit to the bed (Column 3, lines 10-60); a drive control unit configured to control the movement of at least a bed based on the transmitted wireless signal (Column 3, lines 18-40); and an attachment unit (3, 10) configured to attach and detach the operation unit to the bed (Column 2, line 40- Column 4, line 19). Attachable and detachable control units can also control system components other than the bed, such as the X-ray tube and detector (Column 2, lines 25-34 and 55-61). The detachable control unit features allows for an apparatus that can be used in a position that is selectable with respect to the room it is contained in (Column 3, lines 55-60).

Fenner fails to teach an X-ray tube that irradiates X-ray to an object and an X-ray detector that detects X-ray penetrated through the object where a supporting unit is configured to support the X-ray tube and the X-ray detector so that an operation unit could transmit a wireless signal to relate movement to a drive control unit to control movement of the supporting unit. The operation units described by Fenner do not specifically move a supporting unit of the tube and detector. Fenner does not teach that a second operation unit defines movement of the supporting unit or the bed where a second signal related to the movement is transmitted from the second drive unit to the bed by a cable. Fenner does not control the movement of the supporting unit in horizontal or rotation directions.

Galando teaches an X-ray tube that irradiates X-ray to an object and an X-ray detector that detects X-ray penetrated through the object where a supporting unit (C-

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arm) is configured to support the X-ray tube and the X-ray detector. X-ray imaging of an object for diagnostic purposes can thereby be achieved (Column 12, lines 1-19). An operation unit can transmit a wireless or cabled signal (Column 18, lines 37-48) to relate movement to a drive control unit to control movement of the supporting unit. The use of wireless transmission and/or cable transmission is one of design choice and can lead to a system where an operation unit is both corded and infrared (wireless) able to communicate (Column 18, lines 42-48). An attachable and detachable control unit (items 160, 166, 174 and Column 7, lines 1-27) allows for the selective positioning of the source and detector in a mobile manner (Column 4, lines 3-26) such that an operator can also adjust their position with respect to the supporting unit (Column 18, lines 45-48). The operation unit of Galando also allows for movement of the supporting unit in horizontal or rotation directions (Figure 1A).

Therefor, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the mobile supporting unit of Galando with the apparatus of Fenner so that an X-ray source and X-ray detector offering similar mobile flexibility could compliment the apparatus of Fenner to allow diagnostic imaging that can relate control transmissions for drive purposes to both a supporting unit and a bed. This would also allow one operation unit to define movement of the supporting unit, and another operation unit to define movement for the bed. By allowing the control devices of Fenner and Galando to compliment one another in their means for detachment and attachment, the control unit of Galando could be placed on the bed of Fenner for centrality of control devices. The control devices could alternatively be located on the

support to achieve such centrality of components. Wireless, or cabled, transmission would allow an operator to adjust their position with respect to their surrounding equipment (Galando, Column 18, lines 45-48) and with respect to the room (Fenner, Column 3, lines 55-60) based upon the range of the wireless transmission or the length of the cable. The wired or wireless configurations taught by Galando (Column 18, lines 45-48) could be selected based on the degree of mobile freedom desired, or the based upon the tendency to misplace or replace the operation units. By wiring the operation unit to the support or the bed, that device would be harder to lose. The extent of attachment as including both wired and wireless communication paths would be a design choice of the operator.

Regarding claim 2, Fenner teaches an X-ray diagnosis apparatus wherein the bed includes a plurality of attachment units configured to attach and detach the operation unit (3, 10).

Regarding Claims 8 and 9, Fenner teaches the attachment unit including a guide rail (3, 10) that can have a communication unit provided (Column 2, lines 55-67).

Regarding Claim 10, Fenner and Galando teach an X-ray Diagnosis apparatus as above for claim 1.

Fenner and Galando fail to teach that the communication unit transmits the wireless signal related to the movement at several times.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit a wireless signal related to movement at several

times, since such redundancy ensures that the signal is processed. Wireless signals can, at times, be intercepted by intervening objects and can be transmitted over such distances or in such conditions that the signal is too weak to be detected properly. Wireless devices commonly “hand-shake” to ensure that signals were received in their entirety, and received properly. By communicating the wireless signal at several times, the system of Fenner and Galando could benefit where interference or signal weakening has occurred and can redundantly ensure hand-shaking has taken place. The proper transmission of the signal can thereby occur.

Claims 3, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fenner and Galando as applied to claim 2 above, and further in view of Zimmerman.

Regarding Claims 3, 4 and 6, Fenner and Galando teach an attachment and detachment unit above that has sensitive areas for power signal transfer (Fenner, Column 3, lines 49-60).

Fenner and Galando fail to teach a state detection unit configured to detect a state of attachment of the operation unit to the bed, or where the state detection unit is configured to detect whether the operation unit is attached to at least one of the attachment units. The state detection unit does not identify the attachment unit to which the operation unit is attached.

Zimmerman teaches that when more than one available connection can be made between a system and a component of that system, means to identify whether a

connection has been made properly assists in avoiding confusion (Column 2). A system computer shows which components should be attached for proper system functioning and includes visual cues on a display that correlate to cues on the components to be attached. The apparatus does not operate to form a diagnostic image unless the correct combination has been achieved (Column 2). An interconnection area has a special means for allowing the identification of the connected component to allow permissible combinations only (Column 2, lines 39-56).

Therefor, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use identification means in the system of Fenner and Galando to reduce confusion and to ensure proper operation units are included in the system. Identification means associated with the several operation units would reduce confusion by allowing a visual correlation between operation units and a depiction of its configuration on a computer display. By monitoring the interconnections, the system could detect a state of attachment of the operation unit to the bed or to an attachment unit. The attachment unit to which the operation unit is attached could also be identified in order to ensure the proper set-up of the system. This would reduce confusion and prevent diagnostic image formation without the use of the proper system components.

Regarding Claims 7 and 23, Fenner, Galando and Zimmerman teach a method for controlling an X-ray diagnosis apparatus as set forth above for the apparatus of claims 6 and 22. Fenner and Galando teach that the system be moved in a direction defined by an operation unit (Fenner, Column 2, lines 59-61). Based on the touching of

a portion of a control unit embedded in the attachment device, the movement direction can be controlled (Column 3, lines 18-40). Fenner also desires that one attachment device assist with positioning of the patient in general (Column 3) and second attachment device particularly assist with the positioning of a patient head and upper body (Column 4, lines 1-19).

Fenner and Galando fail to teach the determining of a movement direction based on the position defined by the operation unit.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an operation unit that acts to determine a movement direction based on a position of the operation unit. Since the operation units of Fenner set out in Columns 3 and 4 are interchangeable on the attachment devices, it is obvious to determine a movement direction based upon the placement of the operation units. When the operation units move from one attachment unit to the other, it would be obvious to have the system notice that the motion has taken place. This would assist with the particular head and upper body motions desired in Column 4, since the system could the differentiate between general motion of Column 3 and specific motion based upon which attachment unit is employed in which definite position.

Allowable Subject Matter

Claims 5, 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 13 would also have to overcome the objection listed above.

The following is a statement of reasons for the indication of allowable subject matter: Claims 5 and 13 contain allowable subject matter for at least the reason that the prior art of record fails to teach or reasonably suggest an X-ray diagnosis apparatus comprising a tube, detector, supporting unit, bed, operation unit, communication unit, drive control unit and attachment unit wherein the drive control unit stops the movement of at least one of the supporting unit and the bed when the operation unit is not attached to any of the attachment units. Such a limitation in the devices of Fenner or Galando would destroy the mobility afforded by operation unit, which allows a user to stray a distance from the device while still operating the device. Claim 12 contains allowable subject matter for at least the reason that the prior art of record fails to teach or reasonably suggest an X-ray diagnosis apparatus comprising a tube, detector, supporting unit, bed, operation unit, communication unit, drive control unit, attachment unit, second operation unit and second communication unit wherein a drive control unit controls the movement of at least one of the supporting unit and the bed based on the second signal transmitted by the cable prior to the transmission of the wireless signal. Such an ordered transmission of signals is not suggested in the prior art of record.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krystyna Suchecki whose telephone number is (571) 272-2495. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WA


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER